



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/820,970	03/30/2001	Motohide Tamura	Q63782	6901

7590

07/11/2003

SUGHRUE, MION, ZINN, MACPEAK & SEAS, PLLC  
2100 Pennsylvania Avenue, N.W.  
Washington, DC 20037-3202

EXAMINER

MENEFEE, JAMES A

ART UNIT

PAPER NUMBER

2828

DATE MAILED: 07/11/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/820,970

Applicant(s)

TAMURA ET AL.

Examiner

James A. Menefee

Art Unit

2828

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 29 April 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☒ The proposed drawing correction filed on 29 April 2003 is: a) ☒ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

Art Unit: 2828

**DETAILED ACTION**

***Response to Amendment***

In response to the amendment filed 29 April 2003, claim 1 is amended. Claims 1-13 are pending.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Macken (previously cited US 4,897,848).

Regarding claim 1, Macken discloses a laser oscillator comprising laser oscillation means for employing a discharge to excite a laser gas and to generate a laser beam, a box for storing these means, and an optical catalyst formed on the inner wall of said box. While not explicitly disclosed, it is inherent that the catalyst layer is located at a location where uv rays generated by the discharge are exposed. The catalyst layer is formed on the inner walls at a point facing the discharge, thus the uv rays that are formed by the discharge will necessarily be exposed at a location where the catalyst is located.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2-3, and 7-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Macken. Macken discloses the limitations of claim 1 as shown above.

Regarding claim 2, it is not disclosed that the catalyst is formed on a plate that is formed on the inner wall of the box. Placing the catalyst on a plate rather than directly on the box would not significantly change the operation of the device, and therefore this change would be a matter of obvious engineering design choice.

Regarding claim 3, it is not disclosed that the catalyst decomposes NO<sub>x</sub>. However, Macken discloses the catalyst will decompose CO, which is a deteriorated portion of the laser gas. NO<sub>x</sub> is known as a deteriorated portion of a laser gas, and it would have been obvious to one skilled in the art to use such a system in a laser that produces NO<sub>x</sub> in order to remove the deteriorated portion of the laser gas, as taught by Macken.

Regarding claim 7, Macken discloses a laser oscillator comprising laser oscillation means for employing a discharge to excite a laser gas and to generate a laser beam, a box for storing these means, and a portion on the inner wall of said box that receives and reflects light generated by the oscillation means so that the light passes back through the discharge area. It is not disclosed that the reflective portion is a recess. However, the reflective portion of Macken

Art Unit: 2828

performs the same function as the reflective portion of the claim, i.e. to reflect the rays backs through the discharge area. It would have been an obvious engineering design choice to change the shape of Macken's device so that there is a recess, as this will not significantly change the operation of the device.

Regarding claim 8, there is not disclosed a sensor for sensing the uv light. It is well known in the art to include sensors in laser systems to sense the emitted light. It would have been obvious to one skilled in the art to include such a sensor so that the characteristics of the light may be monitored and so that one can take appropriate action in response to any changes in the characteristics, as is well known.

Claims 4-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Guch, Jr. et al. (US 5,550,851).

Regarding claim 4, Guch discloses a laser oscillator comprising a laser oscillation means, a box for storing said laser oscillation means, and a graphitized layer 32 formed on the inner wall of said box. The graphitized layer will inherently absorb uv rays. It is not disclosed that the laser oscillation means is a means for providing discharge to excite a laser gas. However, the laser of Guch is a gas laser, Guch discloses pumping means without disclosing the type of pumping, and such lasers are well known to be excited by a discharge. It would have been obvious to one skilled in the art to use a discharge circuit as the pumping means of Guch as a matter of obvious engineering design, since such lasers are extremely well known in the art and the type of gas laser used will not significantly change the operation of the device.

Art Unit: 2828

Regarding claim 5, the limitations are taught as in the rejection of claim 4 above. It is further disclosed by Guch that the graphitized layer is formed on a plate 12 or 31 on the inner surface of the box. It is further not disclosed that the graphitized layer is located where uv rays generated by said discharge are exposed. However, given a laser discharge circuit, as is well known in the art as shown in the rejection of claim 4 above, it is inherent that uv rays will be exposed on the graphitized layer. The uv rays will be located throughout the box, and thus will necessarily be exposed on the graphitized layer.

Regarding claim 6, it is inherent that the graphitized layer will absorb uv rays, because of the material of the layer.

Claims 9-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Turner (previously cited US 4,905,249).

Regarding claim 9, Turner discloses a laser oscillator comprising laser oscillation means 12 for employing a discharge to excite a laser gas and to generate a laser beam, cooling means 16 for cooling said laser gas, a collector 22 for removing an unwanted portion of the gas from the laser gas, where the collector is located along a path of gas circulation between the laser and the cooling element. It is not disclosed that the unwanted portion of the gas to be removed is HF, however it would have been obvious to remove this unwanted portion of the gas, for the same reasons given with respect to the Macken reference as shown in the rejection of claim 3 above. It is not disclosed that all of the laser elements are included in a single box. The system is a closed laser system. Elements of a closed laser system are often all included in a single box. It would have been obvious to one skilled in the art to include all of the elements in a single box so that

Art Unit: 2828

the atmospheric conditions (i.e. ambient temperature) of each of the elements of the system may be uniform and controlled, thus providing more uniform laser operation, as is well known.

Regarding claims 10-11, it is not disclosed that the collector contains activated carbon or aluminous silica gel. However, it is well known to use such materials with catalysts. It would have been obvious to one skilled in the art to include active carbon or aluminous silica gel in the collector as a carrier for the catalysts, as is well known.

Regarding claims 12-13, Turner discloses that the catalyst is located behind a mesh to contain the catalyst.

### ***Response to Arguments***

Applicant's arguments filed 29 April 2003 have been fully considered but they are not persuasive. Applicant's arguments with respect to claims 2-13 have been considered but are moot in view of the new ground(s) of rejection. Applicant's remaining arguments are addressed below:

1. Argument against 102(b) rejection of claim 1 over Macken.

Regarding argument 1, applicant states that "The Macken reference nowhere teaches or suggests "an optical catalyst layer formed on the inner wall of said box, at a location where ultraviolet rays generated by said discharge are exposed"". However, as shown in the above rejection, this limitation is deemed inherent. The discharge will necessarily form uv light, as this is a characteristic of lasers such as that found in Macken. The catalyst layer faces the discharge area, thus the catalyst layer will necessarily be at a location where uv light is exposed. The

Art Unit: 2828

applicant's arguments regarding the metal used for the catalyst is not relevant to the *claimed* invention.


***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to James A. Menefee whose telephone number is (703) 605-4367. The examiner can normally be reached on M-F 8:30-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul Ip can be reached on (703) 308-3098. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9318 for regular communications and (703) 872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

JM  
June 19, 2003

  
PAUL IP  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2800